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EXAMINER	
THOMPSON, JAMES A	
ART UNIT	**PAPER NUMBER**
2624	2

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

MJ

Office Action Summary	Application No.	Applicant(s)	
	09/683,418	ZECK ET AL.	
	Examiner	**Art Unit**	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Claim Rejections – 35 USC §103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tai (US Patent 5,729,632) in view of Crean (US Patent 5,745,249).

Regarding claim 1: Tai discloses a digital halftoning system (figure 6 and column 6, lines 7-9 of Tai) that converts continuous tone image data to halftone image data (column 15, lines 46-50 of Tai).

Said system comprises a selection circuit (figure 6(150) and column 7, lines 8-10 of Tai) that selects one of a plurality of dot types (column 7, line 65 to column 8, line 4 of Tai) based on a selection indicator (CI) (column 9, lines 7-13 of Tai). Figure 1 is the blending screen logic control (figure 6(150) and column 7, lines 8-10 of Tai), which is also the prior art system of US Patent 5,200,831 (column 2, lines 52-53 of Tai). Said blending screen logic control selects one of a plurality of dot types (column 7, line 65 to column 8, line 4 of Tai) depending upon the local contrast index (column 9, lines 7-13 of Tai).

Said system further comprises a look-up table (figure 1(14) of Tai) having a plurality of halftone screens, specifically grayscale screen 1 (column 8, lines 23-26 of Tai), grayscale screen 2 (column 8, lines 26-30 of Tai), grayscale screen 3 (column 8, lines 30-33 of Tai), and grayscale screen 4 (column 8, lines 38-42 of Tai). Said grayscale screens must stored in the memory (figure 1(14) of Tai) of the blending screen logic control (figure 6(150) and column 7, lines 8-10 of Tai) in order to be accessed. Since said grayscale screens are accessed based on a result of said selection indicator (column 9, lines 7-13 of Tai), the area of memory in which said grayscale screens are stored would constitute a look-up table. Said look-up table outputs halftone image data based on the selected dot type and the continuous tone image data (column 9, lines 59-65 of Tai).

Said system further comprises a digital logic circuit (figure 6(160) of Tai) that receives the halftone image data (column 7, lines 3-6 of Tai), and that, based on the selection indicator (CI), passes the halftone image data without changes (column 9,

lines 7-13 of Tai). The unified rendering unit (figure 6(160) of Tai) renders the halftone image based on the blended halftone screen determined by the contrast index (column 9, lines 7-13 of Tai).

Tai does not disclose expressly a plurality of Holladay counters; that said selection circuit select one of the plurality of Holladay counters based on a selection indicator; that said look-up table outputs halftone image data based on a state of the selected Holladay counter; and that said digital logic circuit can also select at least a portion of the halftone image data and replicate the selected portion of the halftone image data to produce replicated halftone image data.

Crean discloses a plurality of Holladay counters (figure 9(40M,40N) and column 8, lines 23-27 of Crean), which is selected by a selection circuit (figure 9(60) of Crean) based on a selection indicator (column 8, lines 31-35 of Crean).

Crean further discloses that a look-up table (figure 4(50) of Crean) outputs halftone image data (column 7, lines 10-12 of Crean) based on a state of the selected Holladay counter (column 7, lines 7-10 of Crean).

Crean further discloses that a digital logic circuit (figure 4(44) and column 6, lines 37-41 of Crean) selects at least a portion of the halftone image data and replicates the selected portion of the halftone image data to produce replicated halftone image data (column 7, lines 50-54 of Crean). The dot address sequencer (figure 4(44) of Crean) of the selected Holladay sequencer (figure 4(40) of Crean) replicates at least a portion of the halftone image data by laying out bricks in a tile format (column 7, lines 50-54 of Crean) with various offsets (column 7, lines 58-61 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the plurality of Holladay counters taught by Crean to tile, with various offsets, the halftone screens taught by Tai. The particular Holladay counter would be selected by the selection indicator (CI) since said selection indicator is used to determine the dot type used in the halftoning process. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column 2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai to obtain the invention as specified in claim 1.

Regarding claim 8: Tai discloses a method comprising selecting one of a plurality of halftone screens (column 8, lines 18-20 of Tai).

Said method further comprises outputting data from the selected halftone screen (column 11, lines 32-35 and lines 41-43 of Tai). Outputting said halftone screen data inherently requires outputting address bits from said halftone screen data since the locations of the individual halftone dots are required in order to print.

Said method further comprises outputting halftone image data from a look-up table based on the selected halftone screen and the continuous tone image data (column 9, lines 59-65 of Tai).

Said method further comprises controllably processing the halftone image data based on the selected halftone screen (column 10, lines 2-10 of Tai).

Tai does not disclose expressly selecting one of a plurality of Holladay counters; outputting address bits from the selected Holladay counter; outputting halftone image

data from a look-up table based on the address bits from the selected Holladay counter; and controllably processing the halftone image data based on the selected Holladay counter.

Crean discloses selecting one of a plurality of Holladay counters (figure 9(40M,40N) and column 8, lines 23-31 of Crean).

Crean further discloses outputting address bits from the selected Holladay counter (column 8, lines 31-35 of Crean).

Crean further discloses outputting halftone image data from a look-up table (column 7, lines 10-12 of Crean) based on the address bits from the selected Holladay counter (column 7, lines 7-10 of Crean). Controlling the sequencing into the brick that describes halftone dot is inherently based on the address bits since the halftone dots have to be printed at a particular location in said brick.

Crean further discloses controllably processing the halftone image data based on the selected Holladay counter (column 8, lines 31-35 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the plurality of Holladay counters, along with the associated address bits, taught by Crean to tile, with various offsets, the halftone screens taught by Tai. The particular Holladay counter would be selected by the selection indicator (CI) since said selection indicator is used to determine the dot type used in the halftoning process. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column

2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai to obtain the invention as specified in claim 8.

Regarding claim 14: Tai discloses a method comprising selecting one of a plurality of halftone screens (column 8, lines 18-20 of Tai).

Said method further comprises outputting data from the selected halftone screen (column 11, lines 32-35 and lines 41-43 of Tai). Outputting said halftone screen data inherently requires outputting address bits from said halftone screen data since the locations of the individual halftone dots are required in order to print.

Said method further comprises outputting a set of threshold values from a look-up table (column 9, lines 44-49 of Tai) based on at least the selected address bits (column 9, lines 47-49 of Tai). Accessing the threshold values of a halftone screen at a particular location inherently requires the address bits of said location. Otherwise, the particular element of said halftone screen cannot be accessed.

Said method further comprises comparing each threshold value of the set from the look-up table to the continuous tone image data to produce halftone image data (column 9, lines 44-49 of Tai).

Tai does not disclose expressly selecting one of a plurality of Holladay counters; and outputting address bits from the selected Holladay counter.

Crean discloses selecting one of a plurality of Holladay counters (figure 9(40M,40N) and column 8, lines 23-31 of Crean).

Crean further discloses outputting address bits from the selected Holladay counter (column 8, lines 31-35 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the plurality of Holladay counters, along with the associated address bits, taught by Crean to tile, with various offsets, the halftone screens taught by Tai. The particular Holladay counter would be selected by the selection indicator (CI) since said selection indicator is used to determine the dot type used in the halftoning process. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column 2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai to obtain the invention as specified in claim 14.

4. Claims 2, 4-6, 10-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tai (US Patent 5,729,632) in view of Crean (US Patent 5,745,249) and Wang (US Patent 5,859,955).

Claims 2, 6, 10 and 15 disclose the same limitations. Claims 2, 6, 10 and 15 are therefore discussed together.

Claims 12 and 16 disclose the same limitations. Claims 12 and 16 are therefore discussed together.

Claims 13 and 17 disclose the same limitations. Claims 13 and 17 are therefore discussed together.

Regarding claim 4: Tai discloses a digital halftoning system (figure 6 and column 6, lines 7-9 of Tai) that converts continuous tone image data to halftone image data (column 15, lines 46-50 of Tai).

Said system comprises a selection circuit (figure 6(150) and column 7, lines 8-10 of Tai) that selects one of a plurality of dot types (column 7, line 65 to column 8, line 4 of Tai) based on a selection indicator (CI) (column 9, lines 7-13 of Tai). Figure 1 is the blending screen logic control (figure 6(150) and column 7, lines 8-10 of Tai), which is also the prior art system of US Patent 5,200,831 (column 2, lines 52-53 of Tai). Said blending screen logic control selects one of a plurality of dot types (column 7, line 65 to column 8, line 4 of Tai) depending upon the local contrast index (column 9, lines 7-13 of Tai).

Said system further comprises a look-up table (figure 1(14) of Tai) having a plurality of halftone screens, specifically grayscale screen 1 (column 8, lines 23-26 of Tai), grayscale screen 2 (column 8, lines 26-30 of Tai), grayscale screen 3 (column 8, lines 30-33 of Tai), and grayscale screen 4 (column 8, lines 38-42 of Tai). Said grayscale screens must stored in the memory (figure 1(14) of Tai) of the blending screen logic control (figure 6(150) and column 7, lines 8-10 of Tai) in order to be accessed. Since said grayscale screens are accessed based on a result of said selection indicator (column 9, lines 7-13 of Tai), the area of memory in which said grayscale screens are stored would constitute a look-up table. Said look-up table outputs halftone image data based on the selected dot type and the continuous tone image data (column 9, lines 59-65 of Tai).

Said system further comprises a digital logic circuit (figure 6(160) of Tai) that receives the halftone image data (column 7, lines 3-6 of Tai), and that, based on the selection indicator (CI), passes the halftone image data without changes (column 9, lines 7-13 of Tai). The unified rendering unit (figure 6(160) of Tai) renders the halftone image based on the blended halftone screen determined by the contrast index (column 9, lines 7-13 of Tai).

Said system further comprises a comparator (figure 6(160) of Tai) that compares each of the threshold image values of the set (halftone screen) from said look-up table to the continuous-tone image data to produce halftone image data (column 7, lines 28-34 of Tai). The unified rendering controller (figure 6(160) of Tai) also compares the input image values with a halftone screen (column 7, lines 29-31 of Tai) and renders said values as a halftone image (column 7, lines 31-34 of Tai).

Tai does not disclose expressly a plurality of Holladay counters; that said selection circuit select one of the plurality of Holladay counters based on a selection indicator; that said look-up table outputs a set of threshold values based on a state of the selected Holladay counter; and that said comparator is a separate unit.

Crean discloses a plurality of Holladay counters (figure 9(40M,40N) and column 8, lines 23-27 of Crean), which is selected by a selection circuit (figure 9(60) of Crean) based on a selection indicator (column 8, lines 31-35 of Crean).

Crean further discloses that a look-up table (figure 4(50) of Crean) outputs halftone image data (column 7, lines 10-12 of Crean) based on a state of the selected Holladay counter (column 7, lines 7-10 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the plurality of Holladay counters taught by Crean to tile, with various offsets, the halftone screens taught by Tai. The particular Holladay counter would be selected by the selection indicator (CI) since said selection indicator is used to determine the dot type used in the halftoning process. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column 2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai.

Tai in view of Crean does not disclose expressly that said comparator is a separate unit.

Wang discloses a comparator (figure 5(10) of Wang) as a separate unit (column 6, lines 44-48 of Wang).

Tai in view of Crean is combinable with Wang because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a comparator as a separate unit. The motivation for doing so would have been to be able to direct the flow of halftone image data to one of a plurality of different units depending upon what is required (column 6, lines 48-50 of Wang). Therefore, it would have been obvious to combine Wang with Tai in view of Crean to obtain the invention as specified in claim 4.

Regarding claim 5: Tai discloses a digital logic circuit (figure 6(160) of Tai) that receives the halftone image data (column 7, lines 3-6 of Tai), and that, based on the

selection indicator (CI), passes the halftone image data without changes (column 9, lines 7-13 of Tai). The unified rendering unit (figure 6(160) of Tai) renders the halftone image based on the blended halftone screen determined by the contrast index (CI) (column 9, lines 7-13 of Tai).

Tai does not disclose expressly that said digital logic circuit can also select at least a portion of the halftone image data and replicate the selected portion of the halftone image data to produce replicated halftone image data.

Crean further discloses that a digital logic circuit (figure 4(44) and column 6, lines 37-41 of Crean) selects at least a portion of the halftone image data and replicates the selected portion of the halftone image data to produce replicated halftone image data (column 7, lines 50-54 of Crean). The dot address sequencer (figure 4(44) of Crean) of the selected Holladay sequencer (figure 4(40) of Crean) replicates at least a portion of the halftone image data by laying out bricks in a tile format (column 7, lines 50-54 of Crean) with various offsets (column 7, lines 58-61 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include for said digital logic circuit, taught by Tai, the additional option of selecting at least a portion of the halftone image data and replicating the selected portion of the halftone image data to produce replicated halftone image data, as taught by Crean. The motivation for doing so would have been that selecting and replicating said selected portion increases the efficiency and speed of the halftoning process (column 2, lines 40-43 of Crean). Therefore, it

would have been obvious to combine Crean with Tai to obtain the invention as specified in claim 5.

Regarding claims 2, 6, 10 and 15: Tai discloses a plurality of halftone screens (column 10, lines 2-9 of Tai).

Tai in view of Crean does not disclose expressly that said plurality of halftone screens includes at least a clustered-dot halftone screen and a stochastic halftone screen.

Wang discloses using a clustered-dot halftone screen (column 9, lines 60-63 of Wang) and a stochastic halftone screen (column 10, lines 45-50 of Wang).

Tai in view of Crean is combinable with Wang because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use clustered-dot halftone screens and stochastic halftone screens, as taught by Wang, for the plurality of halftone screens taught by Tai. The motivation for doing so would have been that clustered-dot halftone screens are more color stable (column 9, lines 48-49 of Wang) and stochastic halftone screens provide more gray levels (column 9, lines 45-46 of Wang). Therefore, it would have been obvious to combine Wang with Tai in view of Crean to obtain the invention as specified in claims 2, 6, 10 and 15.

Regarding claim 11: Tai discloses using halftone screens (column 7, lines 28-32 of Tai).

Tai does not disclose expressly controllably processing the halftone image data, which comprises outputting the halftone image data without processing the halftone image data, when the selected Holladay counter is a clustered dot halftone screen.

Crean discloses controllably processing the halftone image data, which comprises outputting the halftone image data without processing the halftone image data (column 6, lines 31-35 of Crean), when a particular Holladay counter is selected (figure 9(40M,40N,60) and column 6, lines 28-31 of Crean). The Holladay counter (also referred to as a "Holladay sequencer") simply outputs the halftone image data in a tiled brick format without processing said halftone image data (column 6, lines 31-35 of Crean). Each Holladay counter has its own particular output format (column 8, lines 31-35 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to controllably process the halftone image data with a selected Holladay counter. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column 2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai.

Tai in view of Crean does not disclose expressly that said Holladay counter is a clustered-dot halftone screen.

Wang discloses using a clustered-dot halftone screen (column 9, lines 60-63 of Wang).

Tai in view of Crean is combinable with Wang because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a clustered-dot halftone screen for the halftone screen of the Holladay counter. The motivation for doing so would have been that clustered-dot halftone screens are more color stable (column 9, lines 48-49 of Wang). Therefore, it would have been obvious to combine Wang with Tai in view of Crean to obtain the invention as specified in claim 11.

Regarding claims 12 and 16: The arguments regarding claim 11 are incorporated herein. In order for said Holladay counter to be a clustered dot halftone screen, said Holladay counter must inherently implement said clustered dot halftone screen.

Regarding claims 13 and 17: Tai discloses using halftone screens (column 7, lines 28-32 of Tai).

Tai does not disclose expressly controllably processing the halftone image data, which comprises outputting the halftone image data without processing the halftone image data, when the selected Holladay counter implements a stochastic halftone screen.

Crean discloses controllably processing the halftone image data, which comprises outputting the halftone image data without processing the halftone image data (column 6, lines 31-35 of Crean), when a particular Holladay counter is selected (figure 9(40M,40N,60) and column 6, lines 28-31 of Crean). The Holladay counter (also referred to as a "Holladay sequencer") simply outputs the halftone image data in a tiled

brick format without processing said halftone image data (column 6, lines 31-35 of Crean). Each Holladay counter has its own particular output format (column 8, lines 31-35 of Crean).

Tai and Crean are combinable because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to controllably process the halftone image data with a selected Holladay counter. The motivation for doing so would have been to increase the efficiency and speed of the halftoning process (column 2, lines 33-37 of Crean). Therefore, it would have been obvious to combine Crean with Tai.

Tai in view of Crean does not disclose expressly that said Holladay counter implements a stochastic halftone screen.

Wang discloses using a stochastic halftone screen (column 10, lines 45-50 of Wang).

Tai in view of Crean is combinable with Wang because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement a stochastic halftone screen with the Holladay counter. The motivation for doing so would have been that stochastic halftone screens provide more gray levels (column 9, lines 45-46 of Wang). Therefore, it would have been obvious to combine Wang with Tai in view of Crean to obtain the invention as specified in claims 13 and 17.

5. Claims 3, 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tai (US Patent 5,729,632) in view of Crean (US Patent 5,745,249) and Curry (US Patent 5,410,414).

Claims 3, 9 and 18 disclose the same limitations and are therefore discussed together.

Regarding claims 3, 9 and 18: Tai discloses that the look-up table outputs halftone image data based on continuous tone image data (column 9, lines 37-41 of Tai).

Tai in view of Crean does not disclose expressly that said look-up table outputs high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.

Curry discloses outputting high addressability halftone image data (column 6, lines 41-47 of Curry) having a spatial resolution (column 6, lines 48-52 of Curry) that is greater than a spatial resolution of the continuous tone image data (column 6, lines 58-62 of Curry).

Tai in view of Crean is combinable with Curry because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output high-addressability, hyper-acuity halftone data for printing. The motivation for doing so would have been that the human visual system is more perceptive to printed image data than displayed image data (column 6, lines 34-39 of Curry). Therefore, it would have been

obvious to combine Curry with Tai in view of Crean to obtain the invention as specified in claims 3, 9 and 18.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tai (US Patent 5,729,632) in view of Crean (US Patent 5,745,249), Wang (US Patent 5,859,955), and Curry (US Patent 5,410,414).

Regarding claim 7: Tai discloses that the look-up table outputs halftone image data based on continuous tone image data (column 9, lines 37-41 of Tai).

Tai in view of Crean and Wang does not disclose expressly that said look-up table outputs high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.

Curry discloses outputting high addressability halftone image data (column 6, lines 41-47 of Curry) having a spatial resolution (column 6, lines 48-52 of Curry) that is greater than a spatial resolution of the continuous tone image data (column 6, lines 58-62 of Curry).

Tai in view of Crean and Wang is combinable with Curry because they are from the same field of endeavor, namely halftone image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output high-addressability, hyper-acuity halftone data for printing. The motivation for doing so would have been that the human visual system is more perceptive to printed image data than displayed image data (column 6, lines 34-39 of Curry). Therefore, it would have

been obvious to combine Curry with Tai in view of Crean and Wang to obtain the invention as specified in claim 7.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hwai T. Tai, US Patent 5,625,460, April 29, 1997.

Hwai-Tzuu Tai, US Patent 5,200,831, April 6, 1993.

Douglas N. Curry, US Patent 5,696,604, December 9, 1997.

Thomas M. Holladay, US Patent 4,185,304, January 22, 1980.

Thomas M. Holladay, US Patent 4,149,194, April 10, 1979.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached Monday through Friday at 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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